

# PATENT ABSTRACTS OF JAPAN

(11) Publication number : 64-013439

(43) Date of publication of application : 18.01.1989

(51) Int.CI.

G01N 21/39

(21) Application number : 62-170807

(71) Applicant : HITACHI LTD

(22) Date of filing : 08.07.1987

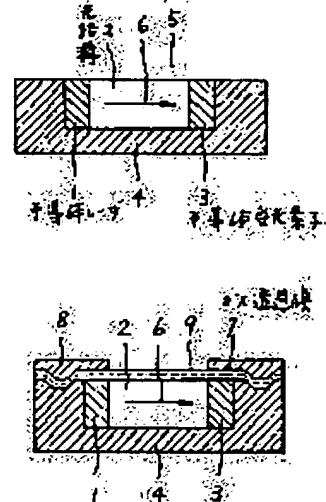
(72) Inventor : WATANABE YOSHIO  
MIYAHARA YUJI  
MIYAGI HIROYUKI

## (54) LIGHT ABSORBING GAS SENSOR

### (57) Abstract:

**PURPOSE:** To reduce the size of a sensor and to take a measurement in gas or liquid by providing a light emission part and a light reception part consisting of P-N junctions on the opposite side walls of a recessed part formed in the surface of a semiconductor substrate or further covering the recessed part with a gas permeable film.

**CONSTITUTION:** The sensor which measures gas to be measured in gas consists of a semiconductor laser 1, an optical path groove 2, a semiconductor photodetecting element 3, and a semiconductor substrate 4. When gas to be measured in liquid is measured, the gas permeable film 7 such as a silicone rubber is fixed by a film presser 8 in said constitution and either one is constituted by a semiconductor manufacture process. Then the gas is admitted into a groove 2 according to the concentration of the gas to be measured in ambient gas 5 or liquid 9 and laser light 6 is absorbed while passing the groove 2; and the attenuated light is detected by the element 3 and the concentration and partial pressure of the gas to be measured are found from the absorbance. The size is therefore reduced by the manufacture process and the gas to be measured in the gas and liquid can be measured.



### LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]